

Mesenteric torsion in a dog

Sheila C. Rahal, Maria I. Garib, Maria J. Mamprim, Carlos R. Teixeira

A 1.5-year-old, intact crossbreed bitch, weighing 7 kg, was referred to the Veterinary Hospital with a suspected intussusception. According to the owner, the animal suddenly became depressed after an onset of yellow diarrhea 24 h before, followed by fluid vomiting, without blood, that started 6 h after the diarrhea. Twenty days earlier, she had given birth to 5 puppies, 1 of them dead.

Physical examination revealed, pale mucous membranes, prolonged capillary refill time, temperature of 38.4°C, heart rate of 180 beats/min, weak pulse, and a tense and painful abdomen upon palpation. The hemogram was normal, with the exception of total protein (50 g/L). The animal received, IV, lactated Ringer's solution (90 mL/kg body weight (BW)/h), hypertonic (7%) saline (4 mL/kg BW), and enrofloxacin (10 mg/kg BW). A plain abdominal radiograph showed reduced organ detail and loops of small intestine moderately distended by gas (Figure 1a). Ultrasonography demonstrated liquid in the abdominal cavity and loops of the intestine containing gas and fluid, without peristaltic contractions (Figure 1b). Obstruction of the small intestine was suspected, and an exploratory laparotomy through the ventral midline was performed.

The anesthetic protocol consisted of premedication with buprenorphine (5 µg/kg BW, IV) plus diazepam

(0.2 mg/kg/BW, IV), and induction and maintenance with isoflurane. A great amount of brownish fluid with a foul odor in the peritoneal cavity; mesenteric twisting; and loops of small intestine dilated with gas, black in color, and without motility were observed. Devitalized small intestine was resected without derotation, and end-to-end duodenoileal anastomosis was performed with size 4-0 nylon. The pancreas seemed normal on macroscopic evaluation. The peritoneal cavity was lavaged with warm physiologic saline.

Postoperative management involved blood transfusion, IV fluids, and parenteral nutrition for 3 d. Enrofloxacin (10 mg/kg BW, SC, q24h) plus metronidazole (20 mg/kg BW, PO, q12h) was administered for 15 d. A small amount of food was offered 4 d after surgery and daily vitamin-mineral supplement was initiated. Initially, the animal had liquid feces that became soft a few weeks later. However, diarrhea was observed occasionally for 5 mo. In the last evaluation, 8 mo after the surgery, the animal was alert, more active, without weight loss, and with normal stools. Contrast radiographs showed barium in the distal colon after 60 min and signs of enteritis were observed.

Mesenteric torsion is infrequent in dogs (1), but small intestine (2,3), large intestine (4), or both (5), can be involved. It has been reported in young adult, male, medium- to large-sized dogs (1), but it should also be a differential diagnosis for acute abdominal disease in small dogs (6), as observed in the present case. It has been associated with tumor (2), gastric dilation-volvulus (3), exocrine pancreatic insufficiency (7), enteritis (5), and intussusception (5,8), among other conditions. In this case, the only known circumstance

Department of Veterinary Surgery and Anesthesiology (Rahal, Garib, Teixeira), Department of Animal Reproduction and Radiology (Mamprim), Faculty of Veterinary Medicine and Animal Science, UNESP Botucatu, Caixa Postal 560, Rubião Júnior, s/n, CEP: 18618-000, Botucatu (SP), Brazil.

Address correspondence to Dr. Sheila C. Rahal.

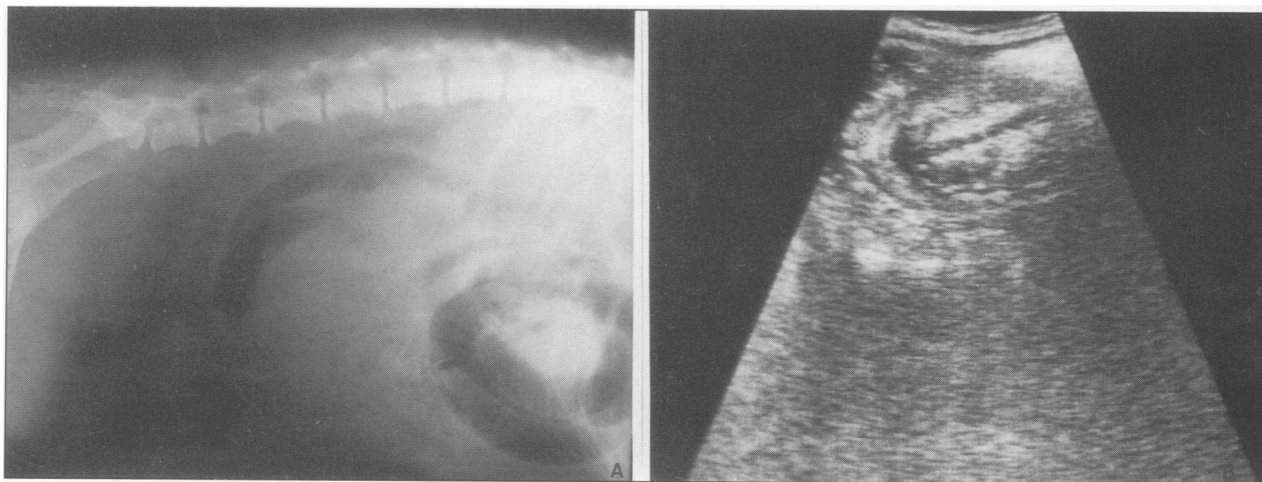


Figure 1. Lateral preoperative abdominal radiograph showing small intestine distended with gas and loss of abdominal detail (a), and ultrasonography showing loops of the intestine with gas and fluid (b).

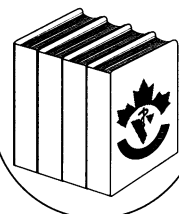
before the torsion was the pregnancy, but it is not known if this was a contributing factor. Prognosis is considered grave (5), and the mortality rate is almost 100% (3,5–7,9). Mesenteric root torsion causes obstruction of the mesenteric artery and its branches, so if it is not treated immediately, death will result (1).

The intestinal resection without derotation differed from the procedure frequently used (1,4,6,8). It was selected because derotation and tissue reoxygenation may contribute to death (1). The preoperative and postoperative management was considered important, because although the intestinal resection was extensive, the animal did not develop short bowel syndrome, which is a potential complication (1,9). Probably, preservation of the ileocecal valve was an important factor, since it extends the duration of intestinal transit and contributes to the prevention of bacterial overgrowth in the small intestine (9).

References

1. Fossum TW, ed. *Small Animal Surgery*. St. Louis: Mosby, 1997: 316–319.
2. Harvey HJ, Rendano VT. Small bowel volvulus in dogs — Clinical observations. *Vet Surg* 1984;13:91–4.
3. Matushek KJ, Cockshutt JR. Mesenteric and gastric volvulus in a dog. *J Am Vet Med Assoc* 1987;191:327–8.
4. Carberry CA, Flanders JA. Cecal-colic volvulus in two dogs. *Vet Surg* 1993;22:225–228.
5. Nemzek JA, Walshaw R, Hauptman JG. Mesenteric volvulus in the dog: a retrospective study. *J Am Anim Hosp Assoc* 1993;29: 357–362.
6. Shealy PM, Henderson RA. Canine intestinal volvulus. A report of nine new cases. *Vet Surg* 1992;21:15–19.
7. Westermarck E, Rimaila-Pärnänen E. Mesenteric torsion in dogs with exocrine pancreatic insufficiency: 21 cases (1978–1987). *J Am Vet Med Assoc* 1989;195:1404–1406.
8. Stickle R, Walshaw R. What is your diagnosis? *J Am Vet Med Assoc* 1989;194:1631–1632.
9. Yanoff SR, Willard M, Boothe HW, Walker M. Short-bowel syndrome in four dogs. *Vet Surg* 1992;21:217–222.

BOOK REVIEWS



COMPTES RENDUS DE LIVRES

Voigt GL. *Hematology Techniques and Concepts for Veterinary Technicians*. Iowa State University Press, Ames, Iowa, 2000. 148 pp. ISBN 0-8138-0491-4. US\$39.95.

This is an excellent review text for someone who has been away from the field for a time and wishes to return to the subject. It is also written at a level that is very good for the student of veterinary technology. Previous texts that I have seen are either too in-depth, being directed at the veterinarian's level or of someone who is specialized in clinical pathology. I find this book supplies the information frequently needed by a technician in general practice and no more. It is, therefore, a valuable, handy resource. However, because, to date, such a text has been difficult to find, I have written my own laboratory manuals in hematology, immunology, and clinical chemistry. Therefore, it doesn't supply anything that I need for my students. Still, it is a text that I would put on my recommended list, because it provides a concise location for reference of information, it provides the student with another "slant" on the information given in the course, and it is a source of information for those students who either prefer or need to read material in a textbook, either as an initial learning method or for a review.

As an instructor, I would like to see more photographic plates to augment the line diagrams and text, particularly microphotographs of normal cellular morphology of the major domestic species, as well as of those showing abnormal erythrocytes, leukocytes, and technical artifacts. The book could then become a sole-source teaching text and I would use it as the required course text.

A further group of pictures showing cytology of normal versus infected/inflammatory reactions in body

fluids, plus vaginal cytology, would also be of benefit and improve Chapter 14 by making the information more meaningful to the student, as would photographs of normal bone marrow illustrating stages of cell maturation. I realize that the cost of the text would rise, but it is already very reasonably priced and these additions would obviate the students having to buy yet another text to have these pictures for reference.

A larger section devoted to automated cell counters would be preferred. In western Canada, the IDEXX QBC-V is widely used, and some information on its principles and printout interpretation would be useful.

As an instructor in a Canadian program, I use SI units exclusively in the laboratory; these are not covered in the text. However, the calculations set out in the text are well done and easy to understand, so this is not a problem that would prevent me from using the textbook. I also prefer the use of the term "Mean Corpuscular Values" over "Red Cell Indices." But it is a good idea to expose students to other terminology. A short section on exotic bloods, particularly avian, including differentials (and again photographs) would be a definite asset.

In summary, this is an excellent text. It provides need-to-know information concisely. If the above recommended changes were made, especially the inclusion of more photographic plates, I would not hesitate to use this book as my required text for the hematology course. It would also be a very popular text for use in general practice. It didn't take me long to make these judgements, which is a testament to its ease of reading and the practical way in which the book is put together.

Reviewed by Patricia Bell, RVT, BSc, Instructor, Veterinary Technology Program, Kelsey Campus, Saskatchewan Institute of Applied Sciences and Technologies, Saskatoon, Saskatchewan S7K 3R5.